

Electricity Supply and Performance of Small and Medium Scale Enterprises in Sierra Leone

Kamara, Abdulsalam

*Center for Entrepreneurship and Innovation
University of Ibadan*

A b s t r a c t

Sierra Leone industrial development over the years has been frustrated by innumerable problems top among which is the erratic nature of electricity supply. This paper empirically explored the electricity supply on performance of small and medium scale enterprises nexus in Sierra Leone. The objective of the study is to examine how electricity supply influences the performance of small and medium scale enterprises of Sierra Leone. Data collected were mostly secondary data sourced from ministries, departments, agencies, newspapers, World Bank and others. The study shows that electricity supply has a positive relationship on small and medium scale enterprises in Sierra Leone. Based on these findings some recommendations were made such as: the use of alternative power supply like the commercial off grid solar and biomass energy, development of SMEs hub and provision of twenty-four hours electricity in such an area, public private partnership, improvement in infrastructure development such as: good transmission and distribution network, good road network and lowering the electricity tariff. The study concludes that electricity supply is a linchpin of Sierra Leone economic emancipation. This will automatically increase economic growth, reduction of poverty and curbing unemployment.

Keywords: *Economic growth, Government policy, SMEs, Poverty and power supply.*

Corresponding Author: Kamara, Abdulsalam

Background to the Study

Sierra Leone is a country situated in [West Africa](#). It is bordered by the [atlantic ocean](#) in the south-west, [Liberia](#) in the south-east and [Guinea](#) in the north-east with a total area of 71,740 km² and an estimated population of 7 million (Statistics Sierra Leone, 2015).

In recent years, after the civil war in 2002 the primary objective of public policies in Sierra Leone like in many developing countries is to reduce poverty and achieve infrastructural development. The power sector has great importance for many reasons such as the high rate of rural population, the large share of employment opportunities, and the sector's contribution to the formation of national income. However, Sierra Leone is a low income, mixed and donor economy that is endowed with natural resources. Despite its plethoric natural resources it is faced with erratic power supply. The low economic growth is traceable to the poor electricity output. More recently, the [2014 ebola outbreak](#) threatens to lead the country into a [humanitarian crisis](#) situation and a negative spiral of weaker economic growth. The problem of low electricity productivity and low economic growth is increasing by the day especially due to the ebola outbreak and the fall in price of iron ore in the international market. The ebola virus disease (EVD) has increased levels of poverty and vulnerability, especially among women, children and youths (AfDB, 2015).

Ahmed et al (2015) examined that electricity supply reliability has become an important public policy issue due to the enormous costs being born by electricity users due to unreliable and inadequate electric power supply. Ensuring electricity supply reliability has also occupied important space in private investment and operating decisions. Consumers of electricity require infrequent occurrence of outages or other power supply disturbances which usually interfere with their use of electrical appliances (for domestic consumers) or halt their production or operational activities. Even at macro level, unreliable power system poses serious challenges to the socioeconomic and political structure of an economy. Some of these challenges manifest in the loss of welfare, pressure on governance, and loss of output among others (Oseni and Pollit, 2013). Poor electricity supply in Sierra Leone and indeed the rest of Africa has posed the greatest challenge to productivity, investment growth and competitiveness (Renneika and Svenson, 2002; AfDB, 2015). Overall, firms with access to electricity tend to have higher productivity than firms without. However, pre-existing conditions (location, access to finance, and management competence) have a strong impact on how access to electricity affects small and medium scale enterprises. Sierra Leone is experiencing post-conflict development recovery since the end of the civil war in 2002 with real GDP growth of 15.2 and 20 percent in 2012 and 2013, ranked as one of the fastest growing economies in Africa (IMF, 2013). Sierra Leone was on a trajectory path of economic development with poverty reduction of 52 percent just before the ebola outbreak. Small and medium scale enterprises are critical for developing countries because of their role in economic growth, poverty reduction and curbing of unemployment. Small and medium scale enterprises encompass a broad spectrum of definitions. The definition varies from country to country due to per capita income and probably population. On a general note, the definition of small and medium scale enterprises has to do with assets, turnover, capital, production capability and employees of the company or firm (Osetimehin et al, 2012).

In this paper, we tend to examine the impact of electricity supply on performance of small and medium scale enterprises (SMEs) in Sierra Leone. Sierra Leone industrial aspiration over the years has been bedeviled by myriads of problems top among which is the erratic nature of electricity supply in the power sector. Every successive government had promised to do something drastic to stabilize the sector in other to drive growth in the industrial sector and improving indigenization (UNDP, 2012).

Statement of the Problem

Sierra Leone infrastructure is very poor. This slows the activities of small scale entrepreneurs especially the transportation of goods and services in cities and other towns. Crumbled transport system, epileptic power supply, inadequate storage facility and lack of technology have the effect of a decrease in small scale entrepreneurship development (AfDB, 2015). The government has formulated policies such as the local content policy and others to boost small scale enterprises but in the implementation of such structures certain conflicting issues are to be addressed ranging from the ability to comply with various policies, political meddlesomeness as well as satisfying the needs of small enterprise owners.

Objectives of the Study

- i. To examine how electricity supply influences the performance of small and medium scale enterprises in Sierra Leone
- ii. To suggest cadences through which small and medium scale enterprises can be more effectively developed in Sierra Leone economy.
- iii. To ascertain government policy actions in which small medium enterprise output could be improved through entrepreneurship development.

Literature Review

Conceptual Framework

Kanu (2015) posited that small medium scale enterprises are generally known for their labour intensive activities and also for their use of local resources. Support for small medium scale enterprises is a common theme because it is recognized that small medium scale enterprises contribute to the national and international economic growth. Small medium scale enterprises play a key role in economic development and make an important contribution to employment and GDP. The European Union definition for SMEs is as follows: "The category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million Euros, and/or an annual balance sheet total not exceeding 43 million Euros." (EU commission report, 2005).

Sierra Leone current electricity capacity is a little over 200 megawatt (MW). The Sierra Leone government through the ministry of energy is projecting to produce a little over 1000MW by 2018. However, the demand for energy will continue to increase in the future. Government must formulate radical progressive policies to curb the energy deficit in the country if only they want to meet the 2018 target of 1000MW (Ministry of Energy, 2013).

According to the Sierra Leone Opportunities for Business Action (SOBA) (2016) report, the energy sector in Sierra Leone is the pivot in the country's development agenda and an important catalyst for achieving sound economic growth as well as widening the investment landscape in the country by attracting investors in the manufacturing and other sectors to propel the economy. Strengthening the energy sector in the country would make the economy more productive, create more jobs, and improve industrialization and also improve the quality of life of Sierra Leoneans. Also significant is the fact that small medium scale enterprises enhance competition and entrepreneurship in the developing countries' economies. In that regard, it is believed that competition may lead to innovation and subsequently, development and entrepreneurship leads to the creation of skills and success in business (Olawale et al, 2010). There is no acceptable definition of SME throughout the world. Researchers have different perspective towards the definition of SMEs. This is as result of the socio-economic and geopolitical buildup of a nation.

Empirical Review

According to Ologundudu, (2014) there are superfluity of literature on the interaction of electricity supply and it impact of small and medium scale enterprise development. However, there is no enough literature on the impact of electricity supply on small and medium scale enterprise development in Sierra Leone. Odell (1995) argued that for Columbia to industrialize, electricity supply and demand are important elements of the process. Oke (2006) attributed the non-competitiveness of Nigeria's export goods to poor infrastructure especially electricity supply, which drives the running cost of firms.

Ndebbio (2006) observed that electricity supply drives industrialization process. He submitted that one important indicator whether a country is industrialized or not is the megawatt of electricity consumed. He further argued that a country's electricity consumption per capita in kilowatt hours (KWH) is proportional to the state of industrialization of that country.

Ekpo (2009) elaborated on the indulgence of running a generator economy and its adverse effects on investment. He strongly argued that for Nigeria to jump start and accelerate the pace of economic growth and development, the country should fix power supply problem. Firms invest in back up capacity to generate their own electricity during power outage.

Reinikka et al (2002) found that unreliable and inadequate electric power supply (which compelled firms to invest in back up generations) greatly reduces firms' investment in other productive activities. In Nigeria, it has been estimated that firms self-generate their electricity at a cost that ranges between 16 to 30 times higher than the publicly provided electricity (UNDP/World Bank, 2010).

Thus the unreliable supply of electricity imposes enormous costs on the firm. Such costs include raw materials damages, equipment spoilage and lose of productive man-hours and forgone sales, disruption of production, reduced profits and management attention among others. As a strategy of mitigating the costs of unreliable or inadequate power

supply firms invest in back up facilities to generate owned electricity in house. As a result many firms are forced to maintain back-up generation capacity. However self-generation of electricity generally costs more than the grid supplied electricity. This cost differential limits the potentials of self-generation as a permanent substitute or solution to power supply unreliability (Ahmed, 2015).

Theoretical Review

Small and medium scale enterprises establish the basis upon which a strong economy is built and large businesses were found. It is therefore imperative to note that small and medium scale enterprises have been identified differently by various individuals, companies and countries such that an enterprise that is considered small and medium in one location is different from another. The definition of SME within a country changes over time. However, there are some certain indices that must be present in the definition of SME. These include but not limited to annual turnover, size of labor, total assets, capital investment and revenue or balance sheet.

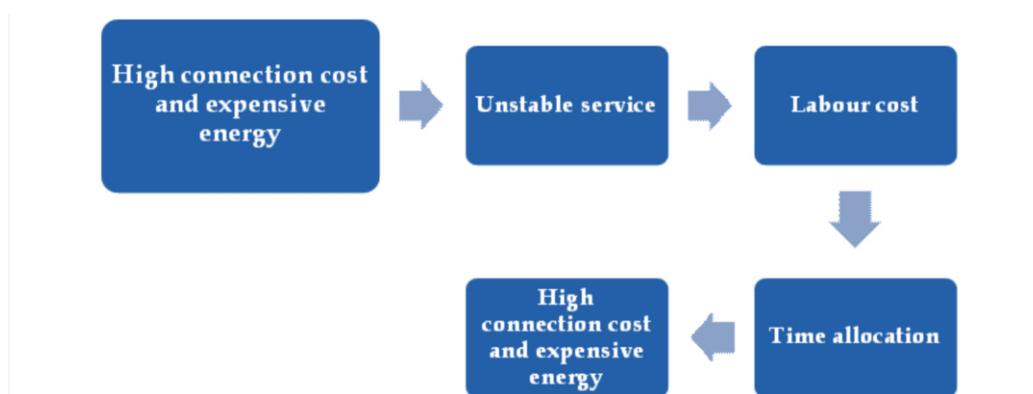
In Sierra Leone, small medium scale enterprises are defined as businesses with less than 50 workers (Liedholm et al 1976). Statistics Sierra Leone defines small medium scale enterprises as micro enterprise having 1-4 employees, small enterprise having 5-19 employees and medium enterprise having 20-49 (A. Y. V., 2013). According to Brown, Medott and Hamitton (1990), Many Small firms are created as a last resort rather than as first choice and have therefore invited growth potential. Therefore, in country like Sierra Leone where both private and public sectors are highly complementary, the lack of government intervention in an economic activity will always constitute an impediment to Small and Medium Scale Enterprises growth. Therefore, government intervention is crucial determinant factor in the growth of SMEs. This is serious issue when viewed from the perspective of this study.

From a study carried out by Modi and Adamu, 2016 titled 'impact of power (electricity) supply on the performance of small and medium scale enterprises in Adamawa state: Case study Mubi north local government area,' discussed extensively on the importance of the Keynesian theory. The theory is considered to be more appropriate in this study. This theory offers useful insight to the understanding of the effect of government intervention in term of regulating the supply of electricity to the SMEs. The major advantage of this theory is its ability to provide the important of government involvement in the economic activities. The Keynesian economics argue that private sector decisions sometimes lead to inefficient macroeconomics outcomes and therefore advocate mixed economy, predominantly private sector, but with a large role of government and public sector (Modi and Adamu, 2016).

Electricity Supply as a Panacea for Small and Medium Scale Enterprises Development

Sierra Leone ranked 148th out of 190 countries in the 'Getting Electricity' rank of the World Bank's doing business 2017 report. The rank measures the number of procedures required for a business to obtain a permanent electricity connection and supply for a standardized warehouse as well as the time required to do so and cost as a share of per capita income.

Sierra Leone's quests for industrialization have been hampered by erratic power supply (SLIEPA, 2016). These have undoubtedly significantly undermined the growth and development process of small and medium scale enterprises (World Bank, 2017). The failure of providing reliable electricity supply has significantly impacted negatively on the operations of the business sector. The small scale subsector that operates with little capital are thus in most cases unable to afford a back-up facility to ensure un-interrupted power supply for their operations. It is therefore imperative for government to ameliorate the power sector because it is a nostrum for SMEs development (Trading Economics, 2016). From the diagram, high connection cost and expensive energy, unstable service, high labor cost, long time allocation would lead to high production cost that will variably increase the prices of goods and service and this will have a negative impact on the standard of living of people. The inverse is the case where low connection cost and cheap energy, stable service, cheap labor cost, efficient time allocation and low connection cost and cheap energy would lead to low production cost that will variably decrease the prices of goods and service and this will have a positive impact on the standard of living of people.



Source: Field survey

Figure 1: Electricity Impact on Production Cost

Challenges and Opportunities of Electricity Supply on SMEs Development

Challenges:

Despite the catalytic role of small medium scale enterprise in the economic emancipation of developing countries particularly Sierra Leone some of the major operational challenges include:

1. The poor transmission and distribution system resulting in high line losses of units of electricity generated: Despite the disintegration of the National Power Authority (NPA) into the Electricity Generation and Transmission Company (EGTC) and the Electricity Distribution and Supply Authority (EDSA), electricity supply is fickle due to poor transmission and distribution system (Ministry of Energy, 2016).
2. Generation capacity is insufficient to meet the need of even urban areas: Only about 15 percent of the population is estimated to have access to electricity from the national power grid. Moreover, there is high seasonal variability in hydroelectric power production (Ologundudu, 2014).

3. Over dependence on thermal and incapacitated hydroelectric power: Thermal plant and hydro power are the two major sources of energy supply in the country. Despite the huge amount of money allocated in these two sources, energy supply is still handicapped and unable to meet current demand.
4. Lack of skilled labour: Sierra Leone lacks the needed skill to construct and maintain this machinery and hydroelectric power plant. Most of the jobs are been outsource.
5. High cost of electricity tariff: Previously and even at the current adjusted rate, it is said that Sierra Leone has one of the highest electricity tariffs in the sub region. Also, due to the high cost in the purchase of fuel, spare parts and lubricants and meets other cost at international rate that lead to the increase in electricity tariff. Also, having compared tariffs in Sierra Leone and other Countries, the International Monetary fund has recommended an end to government subsidy towards electricity supply.

Furthermore, if it is envisaged that if the new tariffs structure are comparatively of international standards, the authority will become viable and consequently meet its financial obligations. This would however attract independent power providers to invest more in electricity.

Therefore, in order for the authority to better fulfill its mandate to the people of Sierra Leone and at the same time continue to provide sustainable power supply, it had no option but to increase it tariff to enhance sustainability. The new tariff adjustment structure which took effect on the 15th September 2016 is divided into 5 categories which go as follows:

Table 1: Electricity Tariff Rate

Tariff category	Units per kwh	Le per kwh	GST 15%	Tariff increase GST	Service charge	GST	Service charge increase GST
		Le	Le	Le	Le	Le	Le
T-1 Residential							
Social	0-30	560	84	644	10500	1575	12075
High-end	31-200	1431	212	1625	10500	1575	12075
T-2 Commercial	All unit	1639	246	1885	14115	2117	16232
T-3 Institutions	All unit	1526	229	1755	14730	2210	16940
T-4 Large energy users	All unit	1752	263	2015	75630	11345	86975
T-7 welding	All unit	1809	271	2080	39570	5936	45506

Source: Awareness Times Newspaper, (2016)

However, consumers in category tariff 1 (Residential) that consume from 0-30 kilowatts per hour are not affected in the adjustment.

Opportunities

1. Employment opportunities: with stable power supply and a boost in the activities of small and medium scale enterprises, more jobs would be created. This is as a result of the fact that such money that businesses would use to buy fuel or generator, would be used to expand production and employ more people (Berk et al, 2005).
2. Improvement in standard of living: With good paying jobs, the standard of living of people will improve.
3. Increase in economic growth: In general view, the nation's production output will increase and this will lead to economic growth and possibly economic development.
4. Development of local industries: Indigenous industries will spur and that will lead to industrialization.
5. Favorable terms of trade: With stable power supply, local industries will be opportune to compete in the international market and that will make Sierra Leone to have favorable terms of trade (Bank of Sierra Leone, 2008).

Conclusions

This study attempted to investigate the impact of electricity supply on the performance of small and medium scale enterprises in Sierra Leone. Small and medium scale enterprises are critical for developing countries because of their role in economic growth, poverty reduction and curbing unemployment. It is therefore imperative for government to provide the necessary infrastructure such as electricity supply to boost the activities of SMEs. Electricity is a necessary condition to determine the performance of SMEs in the country. Sierra Leone has a huge energy potential that if well utilize it would be able to curb the energy deficit of the country.

The energy sector in Sierra Leone is the pivot in the country's development agenda and an important catalyst for achieving sound economic growth as well as widening the investment landscape in the country by attracting investors in the manufacturing and other sectors to propel the economy. Strengthening the energy sector in the country would make the economy more productive and improve industrialization in Sierra Leone.

Recommendations

1. The use of alternative power supply such as commercial off grid solar and biomass energy: Government should diversify electricity production. They should not just focus on thermal and hydroelectric power plant but solar, ethanol and biomass energy.
2. Development of SMEs hub and provision of 24 hours electricity in such an area: The Sierra Leone government should develop SMEs hub that would serves as an ecosystem for innovation and entrepreneurship development.
3. Government should implement policies that encourage indigenous industries: The Sierra Leone government should not only articulate policies but implement, monitor and evaluate policies that encourage indigenous industries.

4. Private investors should be encouraged to invest in the energy sector: Governmental and private efforts should be expanded to accelerate trend towards power production and small and medium scale enterprise development and a sense of individual responsibility towards society, as government cannot do it alone.
5. Improvement in infrastructure development such as: good transmission and distribution network and good road network. Stable power supply is efficient on good road network and good transmission network. It is therefore important for government to develop these basic infrastructures to accelerate stable power supply that will develop SMEs.
6. Low electricity tariff: Sierra Leone has one of the highest electricity tariffs in the sub region. Government should reduce electricity tariff to encourage small and medium scale enterprise development.

References

- AfDB (Africa Development Bank) (2015). Growth and poverty reduction: the role of Small medium scale enterprises. An AfDB Policy Paper. *Africa Development Bank*. pp 185-213.
- Ahmed, A. & Mallo, M. J. (2015). Impact of deficient electricity supply on the operations of small scale businesses in North East Nigeria. *International Journal of Business and Economic Development*, 3 (1). Retrieved on 23 December, 2016 from www.ijbed.org.
- Awareness Times Newspaper (2016). *Electricity tariff rate*. Retrieved on 23 March, from <https://www.slnews.org>
- Awoko Newspaper (2016). *Business cannot operate without electricity*. Sierra Leone News. Retrieved on 23 December, from <https://www.awoko.org>
- Awoko Newspaper (2016). *EDSA Tariffs System*. Sierra Leone News. Retrieved on 23, December, from <https://www.awoko.org>
- Bank of Sierra Leone, (2008). *Annual report and statement of accounts for the year ended 31st December*. Available at: <http://www.bsl.org.sl> accessed 13 March 2017.
- Beck, T., Demirguc, K. & Leine, R. (2005). SMEs growth and poverty: cross-country evidence. *Journal of Economic Growth*, 10 (3), 199-229.
- Bloomberg (2016). *New energy finance, lighting global, GOGLA*
- CIA World Facebook (2015). *Sierra Leone country profile*
- Ekpo, A. H. (2009). *The global economic crisis and the crises in the Nigerian economy*. Presidential Address to the 50th Conference of the Nigerian Economic Society, September, Abuja-Nigeria.

- International Monetary Fund (2013). *Sierra Leone: poverty reduction strategy paper*.
- Kanu, A. M. (2015). The effect of corruption on small and medium enterprises: perspective from a developing country. *International Journal of Small Business and Entrepreneurship Research*, 3 (3), 12-27.
- Kayanula, D. & Quartey, P. (1958). Recruitment and selection practice in small and medium enterprises: perspective from Ghana. *International Journal of Business Management*, 4 (11) 88-90.
- Kirubi, C., Jacobson, A., Kammen, D. M. & Mills, A. (2009). Community-based electric micro-grids can contribute to rural development: evidence from Kenya. *World Development*, 73, 1208–1221.
- Ministry of Energy (2016). *Overview of the Sierra Leone power sector*. Retrieved on 3 February, 2017 from <https://www.energy.gov.sl>
- Ministry of Finance and Economic Development (2014). *The role of government on SMEs development*. Accessed on 4 February, 2017 from <https://www.mofed.gov.sl>
- Modi, A. & Adamu, J. (2016). Impact of power (electricity) supply on the performance of small and medium scale enterprises in Adamawa state: case study Mubi North Local Government Area. *International Journal of Humanities and Social Science Research*, 2, 04-13. ISSN: 2455-2070. Retrieved on 29 June, 2017 from www.socialresearchjournals.com
- Ndebbio, J. E. U. (2006). *The structural economic dimensions of underdevelopment, associated vicissitudes and imperatives: agenda for positive change*. 33 (1 Inaugural Lecture, University of Calabar-Nigeria), Nigeria: Saesprint Publishers
- Ode11, P. R. (1995). The demand for energy in developing region: a case study of the upper valley in Columbia. *Journal of Development Studies*, 3, 234-254.
- Oke, O. A. (2006). *Impact of energy on the manufacturing sector in Nigeria*. From www.fypower.org/pdf/mfg20 accessed 3 January, 2017.
- Olawale, F. & David, G. (2010). Obstacles to the growth of new SMEs in South Africa: A principal component. *Analysis approach*, 4 (5), 729-738.
- Ologundudu, M. M. (2014). The epileptic nature of electricity supply and its consequences on industrial and economic performance in Nigeria. *Double Blind Peer Reviewed International Research Journal*. USA: Global Journals Inc. Online ISSN: 2249-4596 and Print ISSN: 0975-5861

- Oseni, M. O. & Pollit, M. (2013). *Economic costs of unsupplied electricity: evidence from back up generation among firms in Africa*. EPRG Working Paper no 1326, 2013.
- Osoimehin, K. O., Jegede, C. A., & Akinlabi, B. H. (2012). An evaluation of the challenges and prospects of micro and small scale enterprises development in Nigeria. *American International Journal of Contemporary Research*, 2 (4), 174-185.
- Reinikka, R., & Svensson, J. (2002). Coping with poor public capital. *Journal of Development Economics*, 69, 51 – 69.
- Sandy, D. M. (2003). *Small and medium scale enterprise development: a strategy for poverty alleviation in Sierra Leone*. Germany: Skaker, Verlag.
- Sierra Leone Investment and Export Promotion Agency (SLIEPA) (2016). *Overview of the Sierra Leone power sector*. Accessed 21 March, 2017 from <https://www.sliepa.org>
- Sierra Leone Poverty Reduction Strategy Paper II (2008). *An Agenda for Change 2008-2012*.
- Sierra Leone Opportunities for Business Action (2016). *Small Solar market analysis*. Retrieved on 16 May, 2017 from <https://www.sobasl.org>
- Statistics Sierra Leone (2017). *Sierra Leone economic outlook*. The SLCWIQ, SLDHS and SLIHS all available at the website. Retrieved on 3 March, from www.statistics.sl.
- Trading Economics (2016). *Sierra Leone forecast*.
- United Nations Development Programme (2012). *Energizing the millennium development goals: a guide to energy's role in reducing poverty*. UNDP Publication, No. 109, New York: United Nations Development Programme (UNDP).
- World Bank (2008). *The welfare impact of rural electrification: A reassessment of the costs and benefits*. An IEG Impact Evaluation.
- World Bank (2010). *Review of small business activities*. Washington DC: World Bank.
- World Bank (2017). *Doing business report*. Retrieved on 3 April 2017 from <https://www.worldbank.org>